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ABSTRACT

This study provides data that would be useful in assessing and improving instructional climate at the university level. A total of 316 undergraduate and graduate students, representing 22 departments and colleges of the University of Colorado, completed an open-ended questionnaire. Responses were categorized into overall rank ordering of the attributes of an effective instructional climate, attribute clusters and interrelationships, interaction of personal faculty variables and responses, and interaction of personal student variables and responses. A listing of attributes of an effective instructional climate and their utilization are provided emphasizing the input-process, clusters and interacting variables, faculty-student agreement and disagreement, and a teaching-learning contract. (MJM)

HIGHER EDUCATION CENTER
SCHOOL OF EDUCATION
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SIGNIFICANT ATTRIBUTES OF EFFECTIVE COLLEGIATE INSTRUCTIONAL CLIMATE

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CHAPTER I

COLLEGIATE INSTRUCTIONAL CLIMATE

Collegiate instruction frequently has been described as indifferent, irrelevant and unimaginative. Harsher terms have been voiced by faculty and students. The accountability movement has amplified the criticism and added an insistent demand for reform. However, neither denunciation nor demand provides much direction for improvement, nor do they generally constitute an effective incentive for correctional action.

The study reported here sought to provide data which would be useful in assessing and improving instructional climate at the university level. Because faculty and students are intimately involved in the teaching-learning process, each group was questioned as to its perceptions of such a climate. The results of the study, as subsequently stated, do provide some direction for reform and also may serve to stimulate concern for improvement.

Background of the Study

Educational literature is replete with calls for attention to instruction. As a recent illustration, the Carnegie Commission on Higher Education reported in 1972 that 33 per cent of the undergraduates surveyed were "very dissatisfied" or "dissatisfied" with the quality of classroom instruction and 46 per cent of the graduate students believed such instruction to be "poor" or "fair."[1]

Much confusion and disagreement are associated with the rating of courses and faculty members by students. Review of the literature and examination of evaluation forms reveals considerable similarity of items to which students are asked to respond in appraising instruction. Much less is written of the significance or value of these items as viewed by students or faculty, especially the latter.

The present study was conducted in the light of these conditions and as an outgrowth of more than a decade of administrative responsibility for student rating of faculty members and the use of such rating in decision making on reappointment, promotion, salary, tenure and related educational matters.[2] This experience suggested that students are capable of defining rather consistently what they consider to be strengths and weaknesses of given instructional situations in a single field of study, namely, professional education.

Consequently, it appeared worthwhile to ascertain if students in many fields might be able to describe what they considered to be an ideal instructional climate, that is, one conducive to effective and satisfying teaching and learning. Further, it seemed reasonable to determine how faculty members might perceive the same climate. Hence,

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1. Reform on Campus, Berkeley : The Carnegie Commission on Higher Education, 1972, p. 86

2. Reported briefly in: Stephen Romine, "A Decade of Experience with Student Ratings of College Instruction," Phi Delta Kappan, February 1973, pp. 415-16.

this study was undertaken at the University of Colorado, with the view of doing a parallel study of community junior college instructional climate at a later date. This project, involving community colleges in fifteen states is now underway.

The Nature of the Study

The current study was conducted over a portion of two academic years. The attributes of instructional climate were determined initially by asking students what they considered to be the characteristics or conditions of an instructional situation in which they felt highly satisfied with the teaching and highly motivated to study and learn. The converse of this question also was asked, and students were requested to suggest needed improvements of teaching and learning at the university level.

A total of 316 undergraduate and graduate students, representing twenty-two departments and colleges of the University, completed the open-end questionnaire utilized. Analysis and synthesis of the free responses yielded more than 125 statements of attributes, some of which were voiced positively and others negatively. Some referred to a singular attribute, while others were compound in their meaning. The general form of the student responses and the frequency with which similar statements appeared agreed, in the main, with the student perceptions of instruction mentioned earlier.[3]

Consultation with students and faculty members helped to clarify some points in question and resulted in the addition of some items to the pool of attributes. Evaluation forms in use at various collegiate institutions were examined to test further the scope of this pool. Through subsequent consolidation and elimination of items a tentative questionnaire was developed and tested with both faculty and students. The final instrument included 71 possible attributes, effort being made to state these in a manner which reflected the original connotation, as well as explicit meaning, of student responses. Many items define a condition which includes more than one single characteristic, student responses frequently being made in this manner rather than in a precisely defined singular form. Personal information was sought from each respondent so that analysis of the data might include attention to a number of variables.

The student questionnaires were administered in university classes selected with the intent of obtaining a broad distribution of respondents in terms of the personal variables. In addition to written directions in the instrument, oral instructions were given in each class, and the questionnaires were collected at the end of the class period or as completed. Student interest was high and cooperation was excellent, so that the answer sheets were unusually "clean."

A stratified random sample was taken of the faculty so as to provide a good distribution of respondents in terms of the variables applicable

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3. Ibid.

to this group. The questionnaires were sent to individuals via campus mail and two written follow-ups, supplemented by phone calls, were accomplished. Faculty cooperation also was encouraging. Anonymity of all respondents, both faculty and student, was maintained.

The Respondent Samples

A total of 1,237 students made usable responses to the structured questionnaire. A very good estimate suggests that this number represents at least 99 per cent of those who had an opportunity to participate. It was announced in each class that participation was voluntary; very few students chose not to do so and a few made non-usable responses.

A total of 397 faculty members was involved, of which group usable responses were received from 268 individuals for a 67.5 per cent return. In neither group -- student nor faculty -- did all respondents answer every item or provide all of the personal data. For this reason, the number of respondents varies somewhat from one situation to another in the analysis of results.

CHAPTER II

OVERALL RANK ORDERING OF THE ATTRIBUTES

Presented here is a rank ordering of the 71 attributes according to their relative significance to an effective instructional climate as perceived by faculty and students. So that each participant might register his personal perceptions, five choices were provided from which he was to select one, indicating for each attribute whether it:

> Contributes very significantly to an effective instructional climate. (0)
>
> Contributes significantly to an effective instructional climate. (1)
>
> Has no significant positive or negative influence on instructional climate. (2)
>
> Detracts significantly from an effective instructional climate. (3)
>
> Detracts very significantly from an effective instructional climate. (4)

The figures in parentheses indicate the numerical value assigned to each response as used in determining Mean Scores on each attribute for each respondent group. The order, as presented in Figure 1 and Table I, is from the most significant attribute to the least significant in terms of its contribution to an effective instructional climate. The lower the Mean Score, the higher the contribution and the rank order, adjustments being made to restate positively those attributes which appeared on the questionnaire in a negative form.

Since most of the attributes were suggested initially by students as being desirable, the generally positive responses were not unexpected. Variation in responses were very evident, however, and these differences often were statistically significant.

Some Overall Comparisons

It is somewhat surprising to note that faculty members frequently indicated a higher level of significance for an attribute than did students. For example, faculty Mean Score ratings reflect a perceived higher degree of significant contribution for 44 attributes, of which 27 are in the top thirty as ranked by faculty. Among the top thirty attributes as ranked by students, faculty Mean Scores exceeded those of students in 20 cases.

Table I also includes a percentage distribution of responses for each attribute as registered by faculty and students. It may be noted that the differences in distributions between these two groups were statistically significant at the .01 or higher level of confidence (using Chi Square) for 49 attributes. Confidence levels are reported in the table for .05 and higher levels of confidence.

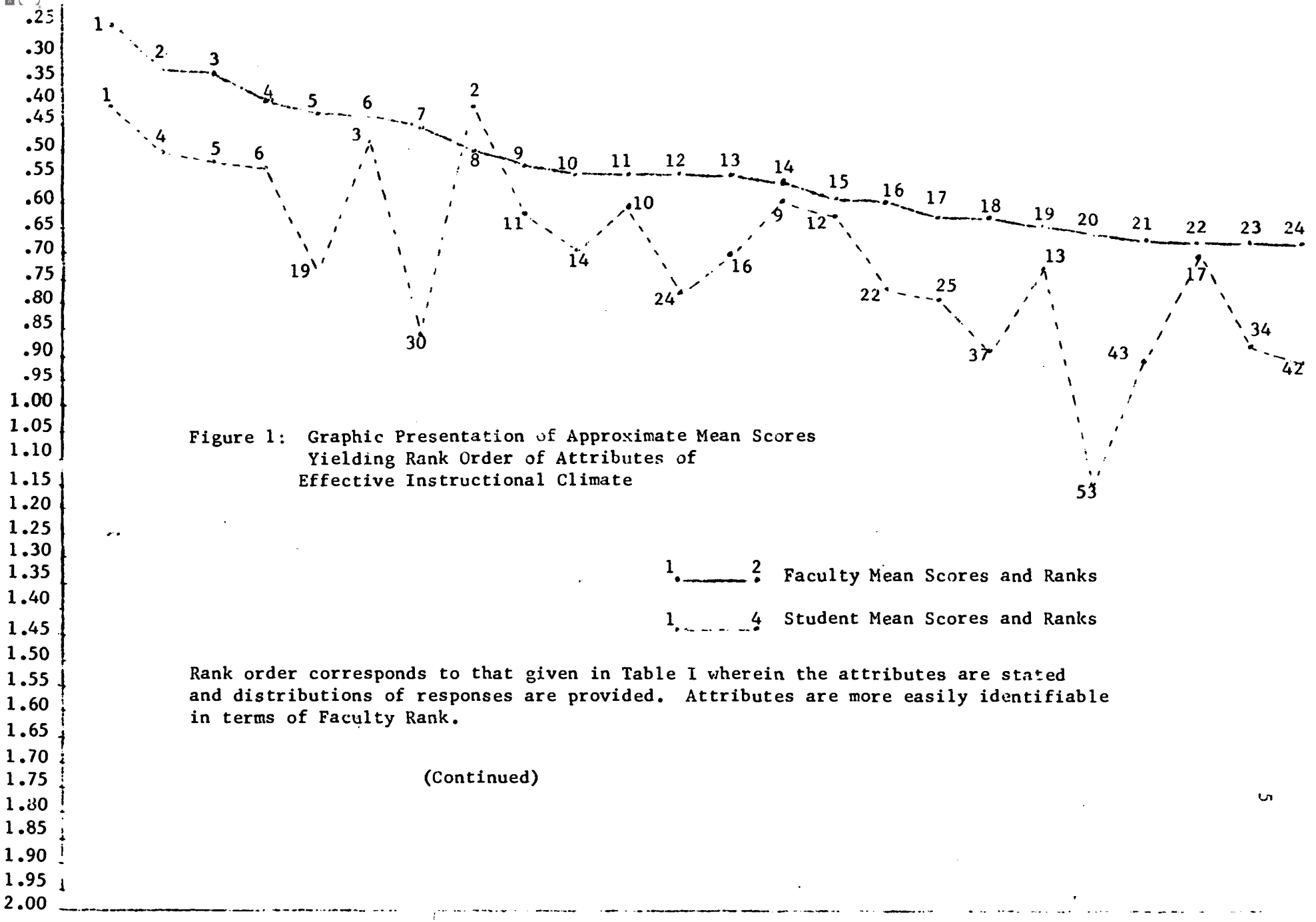

Figure 1: Graphic Presentation of Approximate Mean Scores Yielding Rank Order of Attributes of Effective Instructional Climate

1 ——— 2 Faculty Mean Scores and Ranks

1 - - - - 4 Student Mean Scores and Ranks

Rank order corresponds to that given in Table I wherein the attributes are stated and distributions of responses are provided. Attributes are more easily identifiable in terms of Faculty Rank.

(Continued)

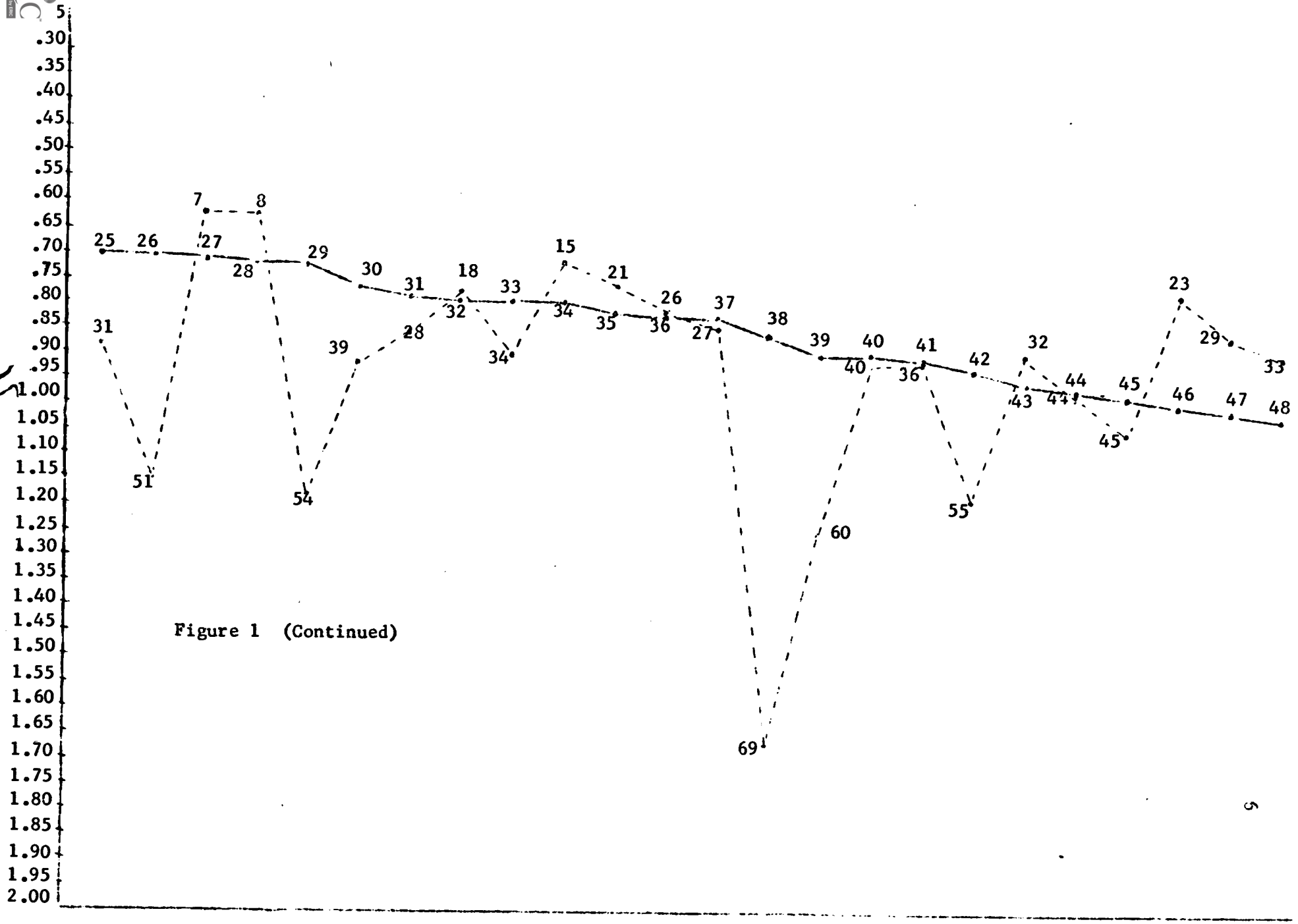

Figure 1 (Continued)

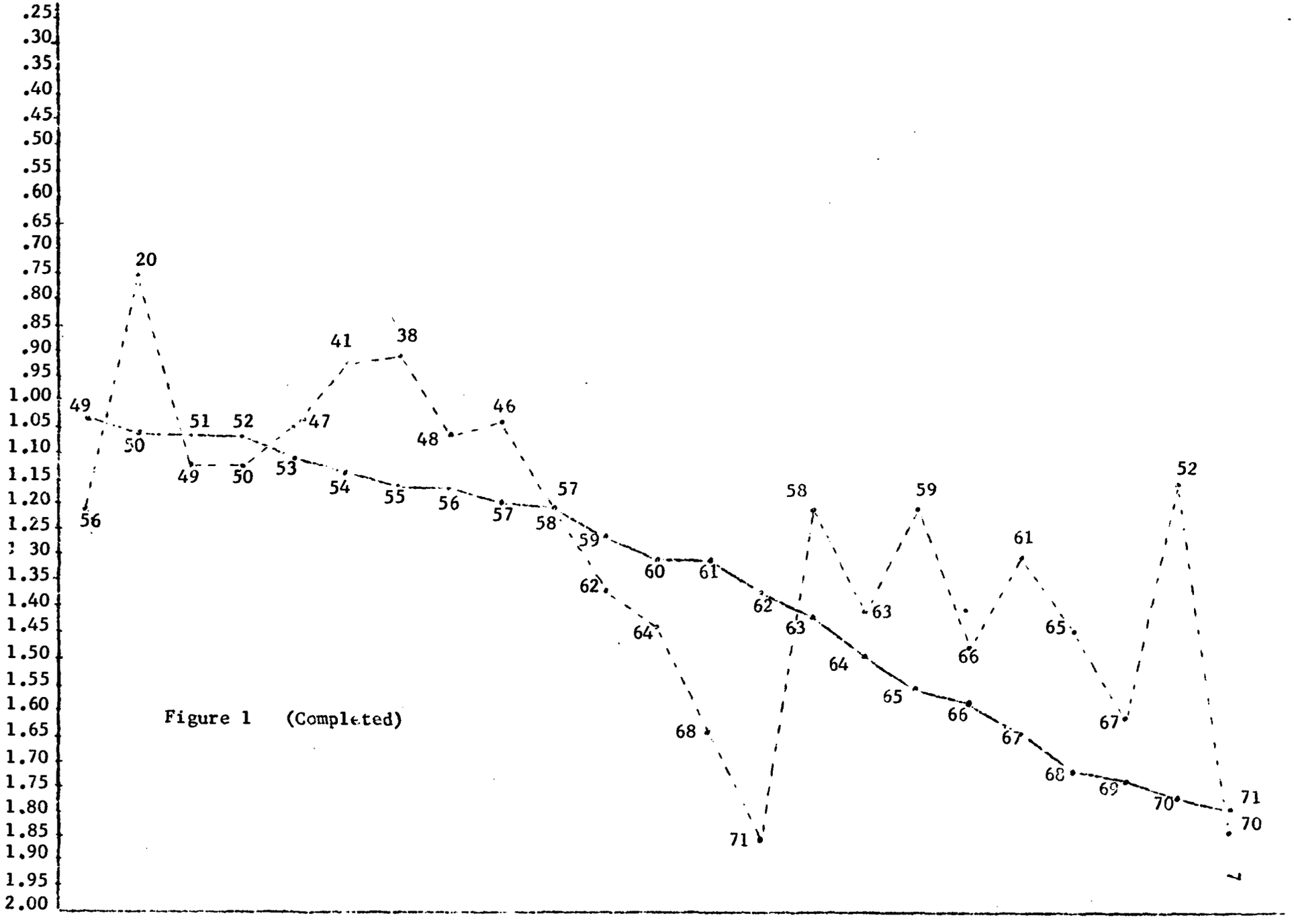

Figure 1 (Completed)

Of the many overall differences in response between faculty and student groups, some are particularly noteworthy. Faculty members assigned much greater significance generally to student responsibility for learning, to active student involvement and to high standards of performance, than did students. The importance of these and related conditions is supported by learning theory. Additional study of student perceptions of their own role in the instructional process and the associated reasons might yield fruitful information. It is possible, for example, that emphasis on teacher responsibility and activity throughout elementary and secondary schools has fostered a more passive and less personally responsible student attitude toward learning than is desirable.

Faculty members and students shared general agreement on the significance of a number of attributes that may be classified together as dealing with instructor's personality or with teaching behavior. More is said later of the clustering of attributes. Faculty members stressed the significance of a number of attributes which place much responsibility upon them, for example, as regards students learning something important, keeping appointments and meeting classes, care with organization of courses and examinations, and the handling of questions. On the other hand, students placed greater significance than did faculty on the attainment of personal objectives and on the credibility and usefulness of courses.

Class size appeared not to be regarded as of much relative importance among attributes, in spite of its relationship to the individualization of instruction. While students frequently expressed the wish to have many elective courses available, they did not give high priority to having courses generally elective. Flexible student performance requirements and pass-fail options were relatively low on the students' list, regardless of occasional clamor to the contrary.

TABLE I

RANK ORDER OF ATTRIBUTES OF AN EFFECTIVE INSTRUCTIONAL CLIMATE AS PERCEIVED BY FACULTY MEMBERS AND STUDENTS

F/R[1]	S/R[1]	Attributes		Percentage Distribution of Responses[2]				
				a	b	c	d	e
1	1	Instructors are well prepared for their classes. (.01)[4]	F[3]	76.5	21.6	1.5	.4	0
			S	63.1	32.7	2.8	1.1	.4
2	4	Instructors are enthusiastic about their courses. (.01)	F	66.4	32.8	.4	0	.4
			S	60.1	32.6	4.5	1.9	.8
3	5	Instructors know their field of specialization very well. (.01)	F	67.5	29.5	2.6	0	.4
			S	57.6	34.0	6.7	1.2	.6
4	6	Instructors are sincerely interested in students and respect them as individuals. (.05)	F	64.6	29.1	6.3	0	0
			S	57.5	34.0	5.8	1.7	1.1
5	19	Instructor's presentations and questions are thought-provoking. (.001)	F	60.1	37.3	2.2	0	.4
			S	42.7	44.0	9.5	3.2	.6
6	3	Instructors are dynamic and energetic.	F	61.6	33.[illegible]	4.5	.4	0
			S	50.3	33.6	5.1	1.7	.2
7	30	Students assume much personal responsibility for their learning. (.001)	F	61.8	31.8	3.7	2.6	0
			S	36.9	45.0	13.0	4.2	.9
8	2	Instructors know <u>how</u> to teach as well as <u>what</u> to teach. (.001)	F	56.0	37.7	5.2	.7	.4
			S	69.2	23.0	4.4	2.3	1.1

Continued

1. F/R = faculty rank. S/R = student rank. Rank by Mean Scores.
2. a = contributes very significantly
   b = contributes significantly
   c = has no significant positive or negative influence
   d = detracts significantly
   e = detracts very significantly
3. F = faculty distributions. S = student distributions
4. Level of confidence indicated when .05 or higher for differences in distribution of responses between faculty and students.

TABLE I (Continued)

[illegible]	[illegible]	Attributes		Percentage Distribution of Responses				
				A	B	C	D	E
10	21	Instructors explain clearly and are easy to understand and follow. ([illegible])	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	14	Students are learning something important in the courses they take. ([illegible])	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	17	Instructors realize when students are bored or confused. ([illegible])	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	24	Instructors are conscientious in keeping appointments with students and in meeting their classes. ([illegible])	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	24	Library and other materials are provided in sufficient quantities and are readily available to students. ([illegible])	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			S	[illegible]	38.3	[illegible]	[illegible]	[illegible]
14	6	Instructors speak clearly and can easily be heard.	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	11	Courses utilize well written, appropriate and interesting books and related reference materials. ([illegible])	F	41.3	[illegible]	[illegible]	[illegible]	[illegible]
			S	[illegible]	[illegible]	8.2	3.1	[illegible]
16	22	Classrooms and laboratories are adequate for instruction, well equipped and free of outside distractions. ([illegible])	F	45.3	[illegible]	3.7	[illegible]	[illegible]
			S	41.2	[illegible]	[illegible]	2.3	1.3
17	25	Instructors are careful and precise in answering questions. (.05)	F	[illegible]	53.7	5.2	.4	[illegible]
			S	35.2	[illegible]	[illegible]	[illegible]	[illegible]
18	37	Courses are well organized with clearly specified objectives, assignments, requirements and related learning aids. (.001)	F	44.8	46.6	7.1	1.5	[illegible]
			S	35.3	45.2	14.3	3.0	1.3
19	13	Instructors present other points of view, as well as their own.	F	42.8	49.2	6.8	1.1	0
			S	41.9	48.5	8.1	1.1	.5

Continued

--TABLE I (Continued)--

F/R	S/R	Attributes		Percentage Distribution of Responses				
				a	b	c	d	e
20	53	Examinations and other course requirements are worthwhile and reasonable in their expectations. (.001)	F S	36.9 29.7	59.0 41.6	3.4 15.2	.7 9.3	0 4.3
21	43	Students are actively involved in the instructional process; they are not merely listeners. (.01)	F S	47.8 35.3	38.8 43.0	10.8 15.8	2.2 4.7	.4 1.1
22	17	Lectures, laboratory experience, recitations, readings and related teaching-learning endeavor are well coordinated. (.02)	F S	37.7 42.1	55.2 48.1	7.1 6.3	0 2.4	0 1.1
23	34	Instructors discuss recent developments in their field of specialization. (.01)	F S	39.6 32.7	52.2 49.6	7.5 13.8	.7 3.5	0 .5
24	42	Marking and grading are clearly explained and accomplished fairly and impartially. (.001)	F S	39.8 37.4	51.5 41.9	7.9 13.5	.4 4.5	.4 2.6
25	31	Lectures add to and complement textbooks and references. (.02)	F S	40.4 33.5	50.6 49.8	7.5 12.6	1.1 3.2	.4 1.9
26	51	Students are encouraged to work independently. (.001)	F S	41.9 22.9	46.8 47.2	10.1 23.5	1.1 5.4	0 1.0
27	7	Students are attaining some of the personal objectives which they had in mind in selecting the courses they take. (.001)	F S	40.0 52.2	49.8 37.0	9.4 8.3	.8 2.2	0 .3
28	8	Courses are credible, meaningful, relevant and useful. (.001)	F S	43.6 56.4	43.2 30.4	11.7 9.6	1.1 2.4	.4 1.1
29	54	Instructors do original and creative work themselves. (.001)	F S	41.8 21.1	44.8 44.5	11.9 30.5	1.5 3.0	0 .9
30	39	Instructors regularly inform students of their progress and performance; they reinforce student learning. (.05)	F S	36.2 34.4	52.6 47.2	9.7 12.9	1.5 3.4	0 2.1

Continued

TABLE I (Continued)

F/R	S/R	Attributes		Percentage Distribution of Responses				
				a	b	c	d	e
31	28	Instructors compare and contrast the implications of various theories.	F	30.3	62.5	6.0	1.1	0
			S	31.0	53.6	11.1	2.1	.2
32	18	Examinations and other written assignments are returned promptly to students and discussed with them. (.001)	F	31.3	60.1	8.2	0	.4
			S	44.6	43.7	7.2	2.2	1.3
33	34	Instructors regularly seek feedback from students about the courses they teach and their teaching. (.02)	F	34.7	54.5	9.3	.7	.7
			S	34.9	46.2	14.6	3.2	1.1
34	15	Instructors have an interesting style of classroom presentation. (.001)	F	30.2	60.4	9.0	.4	0
			S	44.1	44.3	8.9	2.5	1.1
35	21	Instructors are readily accessible to students out of class. (.001)	F	29.5	60.8	8.6	.4	.7
			S	39.3	50.0	6.5	2.8	1.5
36	26	Instructors are personable and have a sense of humor. (.05)	F	23.1	62.2	9.0	.7	0
			S	34.5	52.4	10.8	1.9	.4
37	27	Instructors utilize concepts and facts from related fields. (.01)	F	22.8	72.0	5.2	0	0
			S	29.2	59.6	9.4	1.5	.2
38	69	High standards of performance are required of students. (.001)	F	33.3	50.9	12.7	2.2	.7
			S	11.3	37.4	29.5	17.0	4.8
39	39	Freshman and sophomore classes are taught by associate professors and full professors, as well as by personnel in lower academic ranks. (.001)	F	34.6	45.5	16.9	1.5	1.5
			S	28.4	34.7	24.0	9.3	3.6
40	40	Instructors frequently or always invite criticism of their own ideas.	F	30.3	55.1	10.1	3.4	1.1
			S	34.8	47.3	10.8	5.2	1.9
41	36	Instructors clarify thinking by giving reasons for their questions.	F	21.5	66.4	11.3	.8	0
			S	26.3	60.0	11.3	1.8	.6

Continued

TABLE I (Continued)

F/R	S/R	Attributes		Percentage Distribution of Responses				
				a	b	c	d	e
42	55[a]	Excellence in teaching is weighted heavily by the University in determining salary increases, promotion and tenure for faculty. (.001)	F	34.0	47.0	13.8	3.0	2.2
			S	31.5	35.2	21.6	6.7	4.9
43	32	Instructors summarize major points frequently. (.01)	F	23.9	58.6	16.0	1.5	0
			S	32.6	50.8	12.7	2.8	1.1
44	44	Instructors utilize students' personal interests in instructional situations.	F	24.1	58.6	14.3	3.0	0
			S	27.2	52.6	16.3	3.2	.7
45	45	Classroom procedures include much free and open discussion.	F	26.5	53.4	15.9	3.8	.4
			S	28.3	46.7	18.1	5.8	1.1
46	23	Special academic and related counseling are available to students who need it. (.001)	F	19.1	65.2	14.6	.4	.7
			S	38.3	48.5	10.8	1.6	.8
47	29	A well balanced variety of instructional techniques is used by instructors, including such things as audio-visual aids, case studies, field trips and resource personnel as appropriate to the given course. (.001)	F	25.9	51.1	19.5	3.4	0
			S	39.9	42.0	12.9	3.5	1.9
48	33	Instructors maintain a friendly, informal classroom atmosphere. (.001)	F	22.8	54.1	21.6	1.5	0
			S	35.2	45.3	15.7	2.6	1.2
49	56	Instructors are very knowledgeable in fields other than their own. (.001)	F	18.4	61.7	17.7	2.3	0
			S	19.7	50.0	21.8	6.7	1.8
50	20	Many elective courses are available to students. (.001)	F	17.5	60.1	20.5	1.9	0
			S	38.3	49.3	10.0	1.5	.4
51	49	Classes usually enroll not more than 35-40 students.	F	28.9	42.9	22.2	4.1	1.9
			S	32.0	36.4	21.9	5.9	3.8
52	50	Instructors do their work in cooperation with others and frequently discuss their courses or teaching with others.	F	23.1	50.7	23.1	1.5	1.5
			S	24.9	44.5	24.4	4.9	1.4

Continued

TABLE I (Continued)

F/R	S/R	Attributes		Percentage Distribution of Responses				
				a	b	c	d	e
53	47	Remedial or developmental instruction in basic skills, such as reading, writing, mathematics and speech is readily available to those needing it. (.01)	F	21.1	54.1	19.9	2.6	2.3
			S	30.1	42.1	21.3	4.2	1.8
54	41	Special "group help sessions" are provided for students needing them. (.001)	F	13.3	62.1	22.7	1.1	.8
			S	29.9	52.6	13.4	3.0	1.1
55	38	Individual tutorial assistance is readily available to those who need it. (.001)	F	19.2	67.5	22.0	1.1	1.1
			S	29.1	54.7	12.5	2.8	.8
56	43	Lounges or other suitable settings are available for small groups, both for class related and for purely social purposes. (.001)	F	14.3	56.0	27.1	2.3	.4
			S	26.8	45.3	24.2	1.5	2.2
57	46	There is much opportunity for free reading and study of topics of students' own choice in the courses offered. (.001)	F	20.9	45.3	29.8	4.5	.4
			S	29.4	44.4	19.8	4.9	1.5
58	57	There are many small classes enrolling no more than 8-10 students. (.01)	F	26.3	34.2	33.1	4.5	1.9
			S	31.9	30.8	25.6	7.9	3.8
59	62	No large classes enroll more than 100 students. (.01)	F	20.7	37.2	36.8	5.3	0
			S	21.9	35.3	30.9	7.5	4.5
60	64	Instructors are congenial with their colleagues. (.01)	F	12.7	44.4	42.2	.4	.4
			S	12.7	34.7	49.1	2.2	1.4
61	68	Instructors are sought by colleagues for advice on research and publications. (.001)	F	16.4	39.9	40.7	1.9	1.1
			S	9.0	28.1	53.9	6.8	2.2
62	71	Lectures do not follow textbooks very closely. (.001)	F	16.2	38.1	38.1	6.8	.8
			S	9.2	25.9	40.0	20.3	4.7
63	58	Instructors are not aloof in their relationships with students. (.01)	F	16.2	40.6	30.1	10.9	2.3
			S	25.9	39.9	23.6	8.3	2.4

Continued

TABLE I (Continued)

F/R	S/R	Attributes		Percentage Distribution of Responses				
				a	b	c	d	e
64	63	Members of ethnic minority groups are employed as faculty members, administrators and counselors. (.02)	F	12.7	31.3	51.1	3.0	1.9
			S	20.3	29.2	43.1	3.7	3.7
65	59	Courses are generally elective rather than being required. (.001)	F	10.2	33.1	47.0	8.6	1.1
			S	23.4	43.1	24.0	7.5	1.9
66	66	Students in classes are not expected to perform at the same level and rate of progress. (.05)	F	8.8	44.1	30.3	13.4	3.4
			S	16.7	39.6	26.3	13.6	3.7
67	61	Students are permitted to proceed at their own rate, completing a course in a shorter period if they wish, or taking longer as necessary. (.001)	F	13.2	30.2	37.0	15.5	3.4
			S	26.7	35.9	21.1	12.2	4.0
68	65	Students have opportunity to contract and work for given grades, such as A, B, or C, by doing the quantity and quality of work specifically prescribed as a fixed standard for such grade. (.001)	F	9.4	30.1	43.2	12.8	4.5
			S	23.1	34.9	23.0	11.8	7.2
69	67	Instructors are involved in non-academic campus activities that affect students. (.001)	F	5.2	23.6	64.4	4.5	2.2
			S	11.6	23.5	49.2	7.2	3.4
70	52	Students may elect to take a number of classes on a pass-fail or pass-no pass option. (.001)	F	8.3	32.7	39.1	13.5	6.4
			S	29.6	36.9	24.6	6.6	2.4
71	70	Instructors provide much public service to agencies and people off campus. (.05)	F	3.7	26.2	58.1	10.1	1.9
			S	5.4	18.2	65.0	9.1	2.3

CHAPTER III

ATTRIBUTE CLUSTERS AND INTERRELATIONSHIPS

Consideration of the individual attributes as presented in Figure 1 and Table I provides a good overall picture of what faculty and students perceive to be an effective instructional climate. However further study of interrelationships seemed desirable, particularly as regards the construction and use of assessment instruments to be employed with individual classroom situations.

Based on the judgment of the researcher, the 71 attributes were classified into seven clusters as follows:

Instructor's Personality	(IP)	5 attributes
Instructor-Student Relationships	(ISR)	8 attributes
Student's Learning Behavior	(SLB)	7 attributes
Instructor's Teaching Behavior	(ITB)	29 attributes
Instructor's Other Behavior	(IOB)	3 attributes
Course and Administrative Provisions	(CAP)	17 attributes
Student Outcomes	(SO)	2 attributes

This placement reflects consideration of student response in the initial derivation of attributes, analysis of existing assessment instruments and past experience with student rating of courses and faculty. Other clusters or scales of attributes may be found in the literature.[4]

Faculty and Student Response By Clusters

Cluster Mean Scores were determined for each respondent group using the following scale of values, which is reversed from that used for Figure 1 and Table I:

4 Contributes very significantly
3 Contributes significantly
2 Has no significant influence
1 Detracts significantly
0 Detracts very significantly

Mean Scores, rank order of clusters and the significance of differences of Means were as follows:

Cluster	Faculty Mean & Rank		Student Mean & Rank		Sig. of Diff.
SO	3.369	1	3.345	1	(N/S)
ITB	3.239	2	3.148	2	(.001)
IP	3.203	3	3.108	3	(.001)

4. For an example, see: Kenneth E. Eble, The Recognition and Evaluation of Teaching, Washington, D.C.: American Association of University Professors, 1970, pp. 90-92.

Cluster (continued)	Faculty Mean & Rank		Student Mean & Rank		Sig. of Diff.
ISR	3.086	4	3.076	4	(N/S)
SLB	2.902	5	2.734	6	(.0001)
CAP	2.895	6	2.964	5	(.015)
IOB	2.718	7	2.449	7	(.0001)

With one exception (CAP) Cluster Mean Scores on faculty responses were somewhat higher than those of students. Rank order of clusters is the same for each group, except for a switch of SLB and CAP.

Differences of Cluster Mean Scores were studied separately within each respondent group. With the faculty, these differences were statistically significant at the .01 or higher level of confidence except as between ITB and IP and as between SLB and CAP. With students, the differences of Mean Scores were similarly significant except as between ITB and IP and as between ISR and IP. These statistical results suggest the problem which the researcher had in assigning some attributes rather arbitratily to one cluster rather than another.

Intercorrelations among the clusters also were determined separately for faculty and student groups.

Faculty

	SO	ITB	IP	ISR	SLB	CAP	IOB
SO	(.529)	.483	.266	.339	.408	.431	.133
ITB		(.889)	.567	.607	.425	.636	.363
IP			(.566)	.481	.270	.478	.386
ISR				(.629)	.475	.589	.237
SLB					(.579)	.567	.196
CAP						(.765)	.305
IOB							(.512)

Reliability figures appear in parenthesis for both groups of respondents.

Students

	SO	ITB	IP	ISR	SLB	CAP	IOB
SO	(.520)	.627	.472	.512	.381	.560	.275
ITB		(.917)	.699	.743	.539	.802	.441
IP			(.588)	.669	.381	.605	.414
ISR				(.729)	.432	.714	.301
SLB					(.482)	.522	.379
CAP						(.803)	.412
IOB							(.500)

By considering the reliability coefficients together with Cluster Mean Scores, and noting cluster intercorrelations one may gain an impression of where emphasis may be placed among the clusters in developing assessment instruments, attention also being given to the purposes of such assessment. Among other factors, the number of attributes in a cluster doubtless influences the reliability, which relationship should not be neglected in developing assessment instruments. The high Mean Score for Student Outcomes (SO) and the reliability coefficients for this two-item cluster, for example, suggest that further development of this cluster to include more items might be worthwhile. Further insight into the selection of specific attributes is provided by analysis which indicates how the Mean Score of each attribute correlates with the Cluster Mean Score.

Analysis of Attributes in Clusters

Clusters and the attributes in each appear below in rank order of Cluster Mean Scores based on faculty responses. Cluster Mean Scores are provided, together with reliability coefficients, the latter figures in parenthesis.

Following each attribute the Faculty Mean Score and the Student Mean Score appear, separated by a slash mark: Faculty Mean Score/Student Mean Score. Following this entry, and in parenthesis, are figures for faculty and students indicating the correlation of each attribute Mean Score with the Cluster Mean Score: (faculty correlation/student correlation).

A. Student Outcomes - Mean $_A$ = 3.369/3.345 (.529/.520)

1. Students are learning something important in the courses they take. 3.45/3.20 (.36/.35)

2. Students are attaining some of the personal objectives which they had in mind in taking the course. 3.29/3.30 (.36/.35)

B. Instructor's Teaching Behavior - Mean $_B$ = 3.239/3.148 (.389/.917)

1. Instructors are well prepared for their classes. 3.74/3.57 (.59/.59)

2. Instructors know their field of specialization very well. 3.64/3.47 (.33/.54)

3. Instructors' presentations and questions are thought provoking. 3.57/3.25 (.60/.60)

4. Instructors know how to teach as well as what to teach. 3.48/3.57 (.52/.65)

5. Instructors explain clearly and are easy to understand and follow. 3.46/3.36 (.52/.70)

6. Instructors speak clearly and can easily be heard. 3.42/3.38 (.49/.55)

7. Courses utilize well written, appropriate and interesting books and related reference material. 3.39/3.33 (.59/.65)

8. Instructors are careful and precise in answering questions. 3.35/3.20 (.53/.60)

9. Courses are well organized with clearly specified objectives, assignments, requirements and related learning aids. 3.35/3.09 (.57/.47)

10. Instructors present other points of view as well as their own. 3.34/3.30 (.57/.60)

11. Examination and other course requirements are worthwhile and reasonable in their expectations. 3.32/2.83 (.46/.36)

12. Lectures, laboratory experiences, recitations, readings and related teaching-learning endeavor are well coordinated. 3.31/3.28 (.63/.65)

13. Instructors discuss recent developments in their field of specialization. 3.31/3.19 (.42/.48)

14. Marking and grading are clearly explained and accomplished fairly and impartially. 3.30/3.07 (.45/.51)

15. Lectures add to and complement texts and references. 3.30/3.12 (.37/.46)

16. Instructors regularly inform students of their progress and they reinforce student learning. 3.24/3.08 (.39/.54)

17. Instructors compare and contrast the implications of various theories. 3.22/3.15 (.53/.58)

18. Examinations and other written assignments are returned promptly to students and discussed with them. 3.22/3.27 (.59/.65)

19. Instructors have an interesting style of classroom presentation. 3.21/3.28 (.42/.62)

20. Instructors utilize concepts and facts from related fields. 3.18/3.16 (.53/.56)

21. Instructors frequently or always invite criticism of their own ideas. 3.10/3.08 (.24/.36)

22. Instructors clarify thinking by giving reasons for their questions. 3.09/3.09 (.55/.52)

23. Instructors summarize major points frequently. 3.15/3.11 (.49/.53)

24. Instructors utilize students personal interests in instructional situations. 3.04/3.02 (.35/.53)

25. Classroom procedures include much free and open discussion. 3.02/2.95 (.41/.43)

26. A well balanced variety of instructional techniques is used by instructors including such things as audio-visual aids, case studies, field trips and resource personnel, as appropriate to the given course. 3.00/3.14 (.48/.59)

27. Instructors do their work in cooperation with others and frequently discuss their courses or teaching with colleagues. 2.93/2.87 (.31/.26)

28. There is much opportunity for free reading and study of topics of students/ own choice in the courses offered. 2.80/2.95 (.38/.46)

29. Lectures do not follow textbooks very closely. 2.62/2.15 (.07/-.02)

C. Instructor's Personality - Mean $_C$ = 3.208/3.108 (.566/.588)

1. Instructors are enthusiastic about their courses. 3.65/3.49 (.40/.52)

2. Instructors are dynamic and energetic. 3.56/3.50 (.33/.47)

3. Instructors are personable and have a sense of humor. 3.18/3.19 (.42/.40)

4. Instructors are very knowledgeable in fields other than their own. 2.96/2.79 (.22/.18)

5. Instructors are congenial with their colleagues. 2.69/2.55 (.24/.22)

D. Instructor-Student Relationships - Mean $_D$ = 3.096/3.076 (.629/.729)

1. Instructors are sincerely interested in students and respect them as individuals. 3.58/3.45 (.42/.61)

2. Instructors realize when students are bored or confused. 3.45/3.37 (.38/.53)

3. Instructors are conscientious in keeping appointments with students and in meeting their classes. 3.44/3.20 (.22/.39)

4. Instructors regularly seek feedback from students about the courses they teach and their teaching. 3.22/3.11 (.40/.46)

5. Instructors are readily available to students out of class. 3.18/3.23 (.42/.55)

6. Instructors maintain a friendly, informal classroom atmosphere. 2.98/3.11 (.36/.39)

7. Instructors are not aloof in their relationships with students. 2.53/2.70 (.31/.33)

8. Instructors are involved in non-academic campus activities that affect students. 2.25/2.33 (.10/.10)

E. Student's Learning Behavior - Mean $_E$ = 2.902/2.734 (.579/.482)

1. Students assume much personal responsibility for their own learning. 3.53/3.13 (.35/.30)

2. Students are actively involved in the instructional process; they are not merely listeners. 3.31/3.07 (.46/.33)

3. Students are encouraged to work independently. 3.30/2.86 (.34/.38)

4. High standards of performance are required of students. 3.14/2.33 (-.12/.06)

5. Students in classes are not expected to perform at the same level and rate of progress. 2.41/2.52 (.26/.08)

6. Students are permitted to proceed at their own rate, completing a course in a shorter period if they wish, or taking longer as necessary. 2.35/2.69 (.44/.34)

7. Students have opportunity to contract and work for given grades, such as A, B or C, by doing the quantity and quality of work specifically prescribed as a fixed standard for such grades. 2.27/2.55 (.43/.19)

F. Course and Administrative Provisions - Mean $_F$ = 2.895/2.964 (.765/.803)

1. Library and other materials are provided in sufficient quantities and are readily available to students. 3.44/3.28 (.33/.49)

2. Classrooms and laboratories are adequate for instruction, well equipped and free of outside distractions. 3.39/3.22 (.41/.49)

3. Courses are credible, meaningful, relevant and useful. 3.28/3.38 (.37/.51)

4. Freshman and sophomore classes are taught by associate and full professors, as well as by personnel in lower academic ranks. 3.10/2.75 (.21/.23)

5. Excellence in teaching is weighted heavily by the University in determining salary increases, promotion and tenure for the faculty. 3.07/2.82 (.30/.24)

6. Special academic and related counseling are available to students who need it. 3.01/3.22 (.40/.50)

7. Many elective courses are available to students. 2.93/3.25 (.41/.39)

8. Classes usually enroll not more than 35-40 students. 2.93/2.87 (.15/.46)

9. Remedial or developmental instruction in basic skills, such as reading, writing, mathematics and speech, is readily available to those needing it. 2.89/2.94 (.35/.55)

10. Special 'group help sessions' are provided for students needing them. 2.86/3.07 (.45/.53)

11. Individual tutorial assistance is readily available to those who need it. 2.83/3.03 (.52/.53)

12. Lounges or other suitable informal settings are available for small groups, both for class-related and for purely social purposes. 2.82/2.93 (.43/.43)

13. There are many small classes enrolling no more than 8-10 students. 2.79/2.79 (.35/.41)

14. No large classes enroll more than 100 students. 2.73/2.63 (.23/.24)

15. Members of ethnic minority groups are employed as faculty members, administrators and counselors. 2.59/2.59 (.46/.37)

16. Courses are generally elective rather than being required. 2.42/2.78 (.30/.26)

17. Students may elect to take a number of courses on a pass-fail or pass-no pass option. 2.23/2.85 (.42/.27)

G. Instructor's Other Behavior - Mean $_G$ = 2.719/2.449 (.512/.500)

1. Instructors do original and creative work themselves. 3.27/2.82 (.37/.30)

2. Instructors are sought by colleagues for advice on research and publication. 2.69/2.35 (.42/.36)

3. Instructors provide much public service to agencies and people off-campus. 2.20/2.15 (.21/.29)

Higher Mean Scores identify attributes considered by faculty members and students to be more significant as contributors to an effective instructional climate. Reliability scores for clusters may be reduced very little when wise choices are made in selecting a smaller number of attributes for use in a given assessment situation. For example, by reducing the number of attributes under Instructor's Teaching Behavior (ITB) by one-half, the reliability for the student group would drop only from .917 to about .85, depending upon the items eliminated. A further reduction to only one-fourth of the original number of attributes in the ITB cluster would place the reliability at about .74. Cluster reliabilities might be increased somewhat by eliminating attributes with a near zero or negative correlation with Cluster Mean Scores.

CHAPTER IV

INTERACTION OF PERSONAL FACULTY VARIABLES AND RESPONSES

Individual responses to the attributes were analyzed in terms of personal variables for both faculty and students, a report on the former being made here. Using Chi Square, differences in the distribution of responses significant at the .05 or higher level of confidence were noted and studied for such substantive significance as they might have for the assessment and improvement of instructional climate.

Frequency distribution tables based on original categories often yielded no cases in one or more rows or columns since relatively few faculty members possessed certain personal variables. For example, some age groups included no respondents and the number of minority group faculty members at the University is not very large. As a result, collapsed categories with expected numbers greater than one frequently were used here, although original categories were examined for such additional information as they might provide.

Eight personal variables of faculty members were considered in analyzing their responses. The number of attributes for which statistically significant differences in response (.05 or higher level of confidence) were as follows for these variables:

Academic rank	2
Age	8
Sex	3
Major discipline	12
Sub-cultural membership	4
Teaching experience	5
Satisfaction with instructional climate	9
Administrative responsibilities	3

In looking at differences in the distribution of responses, attention was given to the various possible responses to attributes, with emphasis on "Very Significant" and "Significant" contributions. Added together, these two individual responses are referred to herein as a register of "Total Significance."

Academic Rank

Two hundred and fifty faculty respondents indicated their academic rank as follows:

Assistant Professor	53
Associate Professor	69
Professor	128

Academic rank interacted significantly with responses in only two cases. About 44 percent of the Professors believed that requiring high standards of performance of students contributes "Very Significantly" to an effective

instructional climate whereas less than 24 per cent each of Associate and Assistant Professors registered this same perception. The "Total Significance" of the attribute was not nearly so varied for these professorial groups. Both Professors and Associate Professors attributed much higher "Total Significance" to courses that are credible, meaningful, relevant and useful than did Assistant Professors (about 90 per cent as compared with 70 per cent).

Age

Two hundred and sixty-eight faculty members gave their age as follows:

Less than 18 years of age	0
18-20 years of age	1
21-23 years of age	0
24-26 years of age	1
27-29 years of age	13
30-32 years of age	28
33-35 years of age	25
36-38 years of age	22
39-41 years of age	25
More than 41 years of age	153

Except for those over age 41, progressively greater "Total Significance" was indicated by each successive age group for the attribute that "students are learning something important in the courses they take," the oldest group registering about the same percentage as those from 39-41 years of age. As a group, professors under age 30 reported greater "Total Significance" to the practice of instructors frequently discussing their courses and teaching with colleagues than did professors 30 years of age and older.

More than 50 per cent of those under age 30 believed that the use of a well balanced variety of instructional techniques contributes "Very Significantly" to an effective instructional climate. Less than 26 per cent of each other age group registered such value, but the highest "Total Significance" was indicated by the oldest group.

With quite high percentages of each age group registering "Total Significance," 60 per cent of those under age 30 indicated "Very Significant" for well coordinated lectures, laboratory experiences and related teaching-learning endeavor. In most other age groups this percentage was 25 or less, with an average below 38 per cent for all age groups.

With very few exceptions the faculty stressed the "Total Significance" of instructors preparing well for their classes. However, the percentage suggesting that this attribute was "Very Significant" ranged from 57 per cent among those 30-32 years of age to over 95 per cent among those in the age group 36-38. Faculty under age 30 placed much higher value (100 per cent indicating "Total Significance") on individual tutorial assistance than any other age group, sizeable percentages of these other groups registering no significant positive or negative value for such assistance.

Much higher percentages of the three older age groups attributed "Total Significance" to credible, meaningful, relevant and useful courses. Congeniality with colleagues was regarded by many in each age group as having no positive or negative significance on an effective instructional climate. However, higher percentages of those in three age groups (under 30, 33-35, and 36-38) registered greater degrees of "Total Significance" than did other groups.

Sex

Of the 268 faculty respondents, only 33 were females, and this sex variable appeared to interact with very few responses. However, one may speculate as to the possible influence on overall response of more female faculty respondents, particularly in the light of the sex differences in responses among students as reported later.

Whereas about 81 per cent of the women believed that lectures which follow textbooks closely detract very significantly or significantly from an effective instructional climate, only about 50 per cent of the men registered this response pattern, almost 41 per cent of the latter group indicating that this condition had no significant influence. A higher percentage of women suggested the "Total Significance" of utilizing students' personal interests in instructional situations, but only 3 per cent of these women indicated "Very Significant" whereas for men this figure was 27 per cent. A much higher percentage of women favored the "Total Significance" of maintaining a measure of aloofness in relationships with students.

Major Discipline

Faculty respondents were distributed as follows among major discipline groups:

A.	Environmental design, fine or performing arts, humanities (including classics, English, foreign languages, philosophy, and speech), journalism, history, music, psychology, social sciences and area or ethnic studies.	92
B.	Biological or physical sciences, including engineering, mathematics, medicine, nursing and pharmacy.	72
C.	Education, health, physical education and recreation.	57
D.	Business or law.	47

Faculty members in Group C attributed much higher "Total Significance" to flexibility in performance levels and rates of student progress than did others. This group also indicated somewhat higher "Total Significance" to personableness and a sense of humor than did other groups, chiefly because over 42 per cent of the members registered a response of "Very Significant." Groups C and D reported somewhat greater "Total Significance"

than others for feedback to students and the reinforcement of learning. These two groups also indicated relatively greater "Total Significance" for the active involvement of learners in the instructional process.

Members of Group B ascribed higher "Total Significance" for the attribute "Lectures add to and complement textbooks and references" than did other members. A higher percentage of Group A faculty registered "Total Significance" for smaller classes (not more than 35-40 students). Faculty of Group D suggested much higher "Total Significance" to high standards of student performance, whereas Group C faculty led others in attributing "Total Significance" to a well balanced variety of instructional techniques.

Higher percentages of Groups A and C gave "Total Significance" to free reading and the study of topics of students' own choice. Whereas 70 per cent of the faculty members in Group C registered "Total Significance" for permitting students to proceed at their own rate, fewer than 50 per cent of any other group responded in this manner. Similarly, Group C faculty were more favorable toward pass-fail and pass-no pass course options.

In all groups except A, more than 50 per cent of faculty members indicated that the employment of minority group members as faculty, administrators and counselors had no significant positive or negative influence on instructional climate.

Sub-Cultural Membership

Faculty respondents stated their sub-cultural membership as follows:

Black	3
Chicano or Mexican American	5
Other non-White	4
White	255

The small numbers of minority group faculty limited the value of analysis considerably. Nonetheless, the possible influence of greater numbers of minority member professional employees seemed apparent in checking responses, whether or not the differences observed were statistically significant as defined herein.

In terms of collapsed categories, there were some differences that were significant at the .05 or higher level of confidence. For example, whereas 50 per cent of minority group faculty considered a well balanced variety of instructional techniques to be "Very Significant," fewer than 25 per cent of the white majority faculty gave this response. Quite similar responses were made regarding an interesting style of classroom presentation as a characteristic of effective instruction.

Only about 67 per cent of minority faculty members indicated some measure of positive significance ("Total Significance") to the availability of instructors to students out of class, whereas this figure was almost 92 per cent with white faculty members. Only 50 per cent of minority respondents

registered "Total Significance" for individual tutorial assistance for students needing it; almost 77 per cent of the white group indicated such a significance. These responses suggest that these attributes merit further study, particularly as they relate to minority students.

Teaching Experience

The 268 responding faculty members were grouped as follows according to teaching experience:

First year of college teaching	4
Two - five years of college teaching	44
Six - nine years of college teaching	53
Ten - thirteen years of college teaching	31
More than thirteen years of college teaching	136

The first two groups were collapsed into one having 48 members.

The percentage attaching "Total Significance" to credible, meaningful, relevant and useful courses increased progressively from 72 per cent with the least experienced (no more than five years of college teaching) to more than 93 per cent with the most experienced group. Whereas more than 90 per cent of each group attributed "Total Significance" to conscientiousness in keeping appointments and meeting classes, almost 67 per cent of the most experienced faculty indicated a "Very Significant" contribution, while this percentage averaged only about fifty per cent among other groups.

The "Total Significance" of well organized courses increased progressively from less experienced to more experienced faculty. While almost 90 per cent or more of each group recognized the "Total Significance" of worthwhile and reasonable exams and related requirements, the percentage suggesting that this attribute as "Very Significant" was much lower for the least experienced group than for others. Although almost all faculty indicated some positive significance to courses utilizing well written, appropriate and interesting books and related reference materials, the percentage suggesting "Very Significant" increased substantially and progressively from the less experienced to the more experienced personnel.

Satisfaction With Overall Instructional Climate

Faculty respondents were grouped as follows in terms of their expressed general satisfaction with the overall instructional climate of the University:

Highly Satisfied	15
Satisfied	102
Uncertain	71
Dissatisfied	69
Highly Dissatisfied	11

All of the faculty expressing a high level of satisfaction with instructional climate indicated that instructors who are personable and have a sense of humor contribute significantly or very significantly to the instructional climate. The percentage of other satisfaction-dissatisfaction groups responding in this fashion was lower. Higher percentages of the two groups expressing "Dissatisfaction" and "High Dissatisfaction" registered "Total Significance" for small classes enrolling no more than 8-10 students. Somewhat higher percentages of faculty registering dissatisfaction with instructional climate attributed "Total Significance" to having students assume much personal responsibility for their own learning, although most members of each group indicated such significance.

In general, somewhat smaller percentages of those expressing a measure of dissatisfaction with instructional climate attributed "Total Significance" to instructors being knowledgeable in fields other than their own. Higher percentages of the same dissatisfied groups attributed some degree of significance to instructors being sought by colleagues for advice on research and publication. Progressively higher percentages of those who were "Uncertain" about the instructional climate and of those unhappy with it registered "Total Significance" for pass-fail and pass-no pass courses. Dissatisfied respondents also attributed relatively higher "Total Significance" to classes enrolling fewer than 100 students.

The faculty members expressing some measure of satisfaction ascribed greater "Total Significance" to knowing <u>how</u> to teach as well as <u>what</u> to teach, than did others who expressed dissatisfaction with the instructional climate. All of those expressing high dissatisfaction attributed some degree of significance to encouraging students to work independently, whereas lower percentages of other groups registered such significance. On the other hand, a much smaller percentage of the highly dissatisfied personnel attributed any positive significance to the use of students' personal interests in instructional situations.

Administrative Responsibilities

Administrative responsibilities of respondent faculty are indicated as follows:

No administrative assignment	208
Chairman of department or division	49
Dean	10

A much higher percentage of faculty having administrative responsibilities indicated that dynamic and energetic instructors contribute "Very Significantly" to an effective instructional climate. Chairmen of departments and divisions valued personableness and a sense of humor more highly than deans or other faculty.

Almost 45 per cent of departmental and divisional chairmen indicated that holding classes to not more than 35-40 students contributes "Very Significantly." Neither deans nor other faculty assigned class size such significance.

CHAPTER V

INTERACTION OF PERSONAL STUDENT VARIABLES AND RESPONSES

Attention was given to seven student variables and their possible interaction with responses to the attributes in the same manner as was done previously with the faculty. Because of a much larger number of student respondents, original categories were utilized throughout, except as may be noted hereafter. The numbers of attributes of instructional climate for which statistically significant differences in response (.05 or higher level of confidence) were as follows:

Progress in College	31
Age	9
Sex	54
Major Discipline	48
Sub-cultural Membership	67
Overall Grade Point Average	21
Satisfaction With Instructional Climate	45

The substantive difference in responses was not always apparent, as will be discussed again at later points in this chapter.

Progress in College

In terms of collegiate work completed, students were distributed as follows:

Freshmen	220
Sophomores	246
Juniors	320
Seniors	264
First year graduate students	95
Advanced graduate students	91

Students generally considered the dynamism and energy of instructors as making a "Significant" or "Very Significant" contribution to an effective instructional climate. Upper classmen (juniors and seniors) and first year graduate students registered higher "Total Significance" than freshmen and advanced graduate students. The "Total Significance" of instructors seeking feedback from students about their courses and their teaching was greater as indicated by graduate students than by undergraduates, particularly freshmen.

First year graduate students attributed a much greater "Total Significance" ("Significant" plus "Very Significant") to informing students of their progress and reinforcement of their learning than did other levels. And higher percentages of graduate students indicated that the institutional practice of weighting excellence in teaching heavily in determining salary increases, promotion and tenure was "Very Significant."

Graduate students also indicated higher "Total Significance" than did undergraduates for the active involvement of students in the instructional process. Similar responses were made for thought provoking presentations and questions by instructors and for the discussion by instructors of recent developments in their fields of specialization. The "Total Significance" of requiring high standards of student performance was much greater as registered by graduate students, especially those in their first year. Undergraduates, especially lower classmen (freshmen and sophomores) were not as supportive of such significance for this attribute.

Freshmen placed somewhat less "Total Significance" on the returning and discussing of exams and other written assignments. Advanced graduate students registered relatively less value or "Total Significance" for the use of a well balanced variety of instructional techniques, first year graduate students supporting such significance more highly than other levels. As a group, undergraduates ascribed somewhat higher "Total Significance" to friendly, informal classroom atmosphere than did graduates.

Upper classmen and graduate students were more supportive of the "Total Significance" of instructors knowing their fields of specialization very well, while undergraduates attributed a higher "Total Significance" to adequate classrooms and labs free from distraction. Although about 90 per cent of each group attributed "Total Significance" to the availability of instructors out of class, a higher percentage of first year graduate students and a lower percentage of freshmen indicated that this attribute was "Very Significant." Substantial percentages of each group felt that lectures which followed textbooks closely had no significant positive or negative influence on instructional climate, a relatively higher percentage of graduate students preferring a less close relationship of lectures and texts.

Upper classmen and graduate students attached somewhat greater "Total Significance" than others did to the use by instructors of concepts and facts from related fields. The same responses were apparent with respect to instructors speaking clearly and being easy to hear. The "Total Significance" attributed to the statement "Instructors explain clearly and are easy to understand and follow," was progressively greater from freshmen to graduate students. First year graduate students placed higher "Total Significance" than others on opportunity for free reading and the study of topics of their own choice. These graduate students also expressed somewhat greater "Total Significance" for students' opportunity to proceed at their own rate.

Upper classmen and sophomores attached somewhat greater "Total Significance" to the conscientiousness of instructors in keeping appointments and meeting classes. Upper classmen also registered a higher overall percentage of general significance to the option of pursuing pass-fail or pass-no pass courses. Freshmen and juniors gave the least "Total Significance" to the handling of lower division courses by associate and full professors, while sophomores gave it slightly higher significance than others.

First year graduate students favored opportunity to contract for grades more than did other level students. Instructor aloofness with students received progressively higher negative significance ratings from freshmen through first year graduate students.

Age

The age distribution of student respondents was as follows, one student under age 18 being placed in the group 18-20 years of age:

18-20 years of age	532
21-23 years of age	449
24-26 years of age	112
27-29 years of age	49
More than 29 years of age	92

Students in the age groups 24 years and older attached much higher "Total Significance" to the requirement of high standards of student performance than did others. Younger students suggested somewhat more "Total Significance" for instructor participation in non-academic activities that affect students than did older ones; the same general observation applied to instructors inviting criticism of their own ideas.

Students 21-23 years of age associated somewhat greater "Total Significance" with instructors who do original and creative work themselves than did other age groups. Younger students were relatively more supportive of the "Total Significance" of elective courses. The youngest and oldest groups of students placed somewhat more such significance on opportunity for students to proceed at their own rate in courses.

Students over age 29 placed relatively less "Total Significance" on the conscientiousness of instructors in keeping appointments and meeting classes. Younger students reacted more positively than older ones to the opportunity to pursue courses on a pass-fail or pass-no pass option. Students in the age group 24-26 registered somewhat higher "Total Significance" than others on the comparison of theoretical implications by instructors.

Sex

Student respondents were distributed as follows in terms of their sex:

Females	526
Males	705

This variable interacted frequently with the responses on attributes of instructional climate. In 50 cases the women ascribed somewhat greater "Total Significance" than did men; in four cases the reverse was true. In many of these fifty cases the "Total Significance" percentages of men and women were very similar, but women more frequently registered a higher percentage of "Very Significant" responses, often by a margin of 8-10 per cent.

The attributes given a greater measure of significance by women were as follows, the numbers identifying each attribute as stated in Table I according to rank order by faculty responses:

1, 2, 4, 6, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20,
22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35,
36, 37, 39, 41, 44, 45, 46, 47, 48, 50, 53, 54, 55,
56, 57, 62, 63, 64, 65, 66, 67, 68, 69.

Men attributed a greater measure of significance on items 3, 5, 9 and 70. In general, it may be observed that men were somewhat more conservative than women in the assessment of significance associated with the attributes of instructional climate.

Major Discipline

The distribution of students among major disciplines was as follows:

A.	Environmental design, fine or performing arts, humanities (including classics, English, foreign languages, philosophy and speech), journalism, history, music, psychology, social sciences and area or ethnic studies.	445
B.	Biological or physical sciences, also including engineering, mathematics, medicine, nursing and pharmacy.	434
C.	Education, health, physical education or recreation.	163
D.	Business or law.	193

Again, interaction was widespread, the differences in distribution of responses among the four groups being statistically significant at the .05 or higher level of confidence for 48 attributes. In terms of comparative rating of these attributes, based on percentages registering "Very Significant" and "Significant" responses, Group B students were more favorably responsive, followed in order by Groups C, A and D. Said in another way, the more favorably responsive groups were less conservative in their appraisal of attribute significance.

In comparing group responses, it was noted that students of Group B indicated higher "Total Significance" than did those in other groups for the following attributes, the numbers identifying them as stated in Table I according to faculty rank order:

1, 8, 9, 14, 16, 22, 32, 34, 35, 42, 47, 60, 67.

Similarly, Group C students gave relatively higher ratings to:

13, 44, 51, 54, 61, 62, 64.

In like fashion, for Group A the following received comparatively higher scores:

50, 58.

With many other attributes the distributions, although significantly different, did not reveal the relatively clear cut variation as found with those items above.

Sub-Cultural Membership

Student respondents were grouped as follows in terms of sub-cultural membership:

Black	38	Other Non-White	39
Chicano	106	White	1,049

Significant differences in the distribution of responses among the groups were observed for 67 of the 71 attributes, often with exceptionally high Chi Square confidence levels. Unequal sized groups are indicative of relatively low enrollments among minority students.

As might be expected, the highest percentages of "Very Significant" and "Significant" responses were usually given by White students -- 58 cases. Two general patterns of response emerged. In Pattern A the sub-cultural groups were arranged as follows in terms of the percentage of "Very Significant" and "Significant" responses, White students yielding the highest percentage and Chicano students the lowest:

White -- Other Non-White -- Black -- Chicano

This pattern appeared for 33 attributes, each identified below by number according to the faculty rank order in Table I:

2, 3, 4, 5, 6, 8, 9, 11, 13, 14, 15, 17, 18, 19,
20, 22, 24, 26, 27, 31, 33, 34, 35, 36, 40, 46,
48, 49, 50, 52, 53, 67, 68.

Pattern B reversed two groups to yield the following, Whites still registering the highest "Total Significance" and Chicanos the lowest:

White -- Black -- Other Non-White -- Chicano

This pattern appeared for 18 attributes, each identified as previously described in Table I:

1, 10, 16, 21, 25, 28, 29, 30, 32, 37, 38,
42, 44, 45, 47, 53, 57, 60.

It would seem that length of exposure to higher education and extent of adjustment to and success therein may be the operative factor underlying what appears here as sub-cultural differences in response.

Estimated Grade Point Average

On the basis of their approximate overall GPA, students were grouped as follows using the four point scale (A = 4, B = 3, C = 2, D = 1, F = 0):

GPA of 3.5 - 4.0	245
GPA of 3.0 - 3.4	381
GPA of 2.5 - 2.9	378
GPA of 2.0 - 2.4	203
GPA of under 2.0	29

The latter category results from collapsing data originally called for in three categories -- 1.5 to 1.9, 1.0 to 1.4 and under 1.0. Relatively few students with a GPA of under 2.0 remain in the University. Of the 29 indicated above, 26 were in the original category of 1.5 to 1.9; three were in the category 1.0 to 1.4. The two higher GPA categories are relatively large because of the inclusion of graduate students.

Of 25 cases of statistically significant interaction between GPA and responses to attributes, no pattern was discernible with five, nor did there seem to be any plausible explanation. With each of the following, higher percentages of students with GPA's of 3.5 - 4.0 reported "Total Significance" (i.e., combined "Very Significant" and "Significant"), which percentage declined to a low in the middle GPA range (usually lowest for the group 2.0 - 2.4), and which tended to be somewhat higher again with the lowest GPA category of under 2.0. The numbers in parentheses identify the rank order of attributes from Table I as given by faculty and students (faculty rank/student rank):

Instructors regularly inform students of their progress and performance; they reinforce student learning. (30/39)

Excellence in teaching is weighted heavily by the University in determining salary increases, promotion and tenure for faculty. (42/55)

Marking and grading are clearly explained and accomplished fairly and impartially. (24/42)

Instructors realize when students are bored or confused. (11/10)

Instructors presentations and questions are thought-provoking. (5/19)

Lectures add to and complement textbooks and references. (25/31)

Instructors do their work in cooperation with others and frequently discuss their courses or teaching with others. (52/50)

High standards of performance are required of students. (38/69)

Classroom procedures include much free and open discussion. (45/45)

Instructors are sought by colleagues for advice on research and publication. (61/68)

Instructors speak clearly and can easily be heard. (14/9)

Examinations and other course requirements are worthwhile and reasonable in their expectations. (20/53)

Courses utilize well written, appropriate and interesting books and related reference material. (15/12)

Of these attributes, four may be observed as being in the top twenty of perceived significance by both faculty and students.

Two other cases merit mention. On one -- "Examinations and other written assignments are returned promptly to students and discussed with them" -- the "Total Significance" as perceived by students increased as the GPA decreased. On the other -- "Courses are generally elective rather than being required" -- greater "Total Significance" was registered by students in the middle GPA groups, with those at each extreme rating the attribute somewhat lower.

Satisfaction With Overall Instructional Climate

Student respondents were grouped as follows on the basis of their expressed general satisfaction or dissatisfaction with the overall instructional climate of the University:

Highly Satisfied	68
Satisfied	552
Uncertain	305
Dissatisfied	264
Highly Dissatisfied	47

Interaction of this variable with responses was statistically significant for 45 attributes, but the substantive significance of many such differences was elusive. However, several observations are warranted.

Students in the three middle groups -- "Satisfied," "Uncertain," and "Dissatisfied," especially those registering uncertainty, tended to be somewhat more conservative than those in the two other groups in attaching significance to the attributes. Although the "Total Significance" ("Very Significant plus "Significant") percentages frequently were not greatly different among the various categories, the differences among the percentages indicating "Very Significant" often were quite large. This condition was not generally so evident in the case of other personal variables. In this situation, those students indicating that they were "Very Dissatisfied" with the instructional climate registered the highest percentage of "Very Significant" responses in the case of 30 attributes.

Two other conditions would seem to merit attention. Those students indicating "High Satisfaction" and "Satisfaction" with the instructional climate indicated higher percentages of "Total Significance" for 15 attributes in two clusters -- Instructor's Personality and Instructor's Teaching Behavior -- which ranked second and third (just below Student Objectives) as rated by both faculty and students.

These 15 attributes were as follows, the figures in parentheses revealing the ranking in Table I (faculty rank/student rank):

Instructors are well prepared for their classes. (1/1)

Instructors are dynamic and energetic. (6/3)

Instructors are personable and have a sense of humor. (36/26)

Instructors discuss recent developments in their field of specialization. (23/24)

Instructors are enthusiastic about their courses. (2/4)

Instructors have an interesting style of classroom presentation. (34/15)

Instructors are very knowledgeable in fields other than their own. (49/56)

Lectures add to and complement textbooks and references. (25/31)

Examinations and other written assignments are returned promptly to students and discussed with them. (32/18)

Lectures, laboratory experiences, recitations, readings and related teaching-learning endeavor are well coordinated. (22/17)

Instructors are careful and precise in answering questions. (17/25)

Instructors explain clearly and are easy to understand and follow. (9/11)

Instructors speak clearly and can easily be heard. (14/9)

Courses are well organized with clearly specified objectives, assignments, requirements and related learning aids. (18/37)

Examinations and other course requirements are worthwhile and reasonable in their expectations. (20/53)

These attributes seem to place considerable responsibility for an effective instructional climate upon the instructor, suggesting that student satisfaction with this climate rests in high degree upon the teaching personnel.

Students registering "High Dissatisfaction" and "Dissatisfaction" with the instructional climate indicated a higher percentage of "Total Significance" for a few attributes among which the following form an interesting group, although they are from several different clusters:

There are many small classes enrolling no more than 8-10 students. (58/57)

Classroom procedures include much free and open discussion. (45/45)

There is much opportunity for free reading and study of topics of students own choice in the courses offered. (57/46)

Students are permitted to proceed at their own rate, completing a course in a shorter period if they wish, or taking longer as necessary. (67/61)

Instructors utilize students' personal interests in instructional situations. (44/44)

These attributes would seem to call for the individualization of instruction.

CHAPTER VI

OBSERVATIONS AND IMPLICATIONS

The principal challenge of the dedicated teacher is to create conditions in which successful and satisfying learning takes place. The aim of this study has been to look at such conditions as perceived by both the teacher and the learner. Factors relevant to these perceptions have been considered in an attempt to understand more completely what prompts people to believe as they say they do.

The Nature of the Respondent Samples

In terms of the eight personal variables, the respondent faculty sample probably gives a reasonable cross-sectional representation of the total group of professors. It may be somewhat heavy with full professors and "older" and more experienced personnel. Not many women or minority faculty were involved, but the numbers of such personnel are relatively low. The respondent student sample is probably a somewhat better representation of the student body, with reference to the seven personal variables considered. Relatively respectable numbers of persons were involved to represent each of these variables. In the main, therefore, the observed results of the study would seem to be sufficiently generalizable to the University as a whole to be worthy of use and further study.

A Selection of Attributes and Their Utilization

Several general observations about the attributes and response to them merit mention. From the list of attributes, as generated largely by the suggestions of students, it is apparent that emphasis is placed upon instructors and related conditions which lie outside the learner and his behavior. This condition is consonant with the general posture usually taken toward instruction, namely, that emphasis is focused on teaching and the instructor rather than upon learning and the student. In the light of learning theory, it may well be that this emphasis is misplaced.

Input-Process Emphasis

The heavy emphasis on input and process in the initial student-suggested attributes, as opposed to outcomes, raises other questions. Doubtless part of this emphasis arises in view of the nature of the inquiry with its focus -- "what is going on when . . . ." At the same time, however, the rare mention by students of achievements, attainments or outcomes as part of or in relation to "what is going on" suggests that perhaps both faculty and students throughout schools and higher institutions have not given enough attention to objectives and their accomplishment.

The favorable response of faculty and students to the two attributes dealing specifically with student outcomes (which were placed in the questionnaires to test a hypothesis of the investigator and not because students had suggested them), supports this call for attention to outcomes. Such consideration may also lead us to judge instructional effectiveness more on the basis of outcome results rather than on the basis of input-process satisfaction. While the two conditions (input-process and outcomes) doubtless are related, it is unwise simply to conclude that either faculty or student satisfaction with input and process necessarily means that optimal learning is taking place. The need for increasing attention to learning outcomes is growing as the accountability movement gains momentum.

Mindful of what has been said, a selected list of attributes has been produced as a result of considering the several facets of the study together. It was intended to present the first 30 attributes as ranked separately by faculty and by students on the basis of Mean Scores of perceived significance to an effective instructional climate, together with some other data that would be useful to persons wishing to consider the attributes for the assessment and/or the improvement of instructional climate.

Attention to the following statements is advised in interpreting the list and its meaning.

1. Before each attribute in the list, the numbers indicate the faculty rank - student rank, such as 1-1.

2. In the first set of parentheses following the attributes in the list, the letters identify the cluster in which each attribute is classified, such as (ITB), according to the following key:

IP	Instructor's Personality	(3)
ISR	Instructor - Student Relationships	(4)
SLB	Student's Learning Behavior	(3)
ITB	Instructor's Teaching Behavior	(21)
IOB	Instructor's Other Behavior	(1)
CAP	Course and Administrative Provisions	(5)
SO	Student Outcomes	(2)

The figures in parentheses following each cluster identified above indicate the number of attributes for that cluster in the selected list which appears later.

3. The figures in the second set of parentheses following each attribute in the list indicate the correlation of the faculty Mean Score on the attribute with its cluster Mean Score and the correlation of the student Mean Score with the cluster Mean Score, such as (.59/.59).

4. Comments that follow identify the statistically significant (at the .05 or higher level of confidence) interaction, if any, with the personal variables considered in the study. Details of such interaction may be found in Chapters IV and V.

The list follows:

1-1 Instructors are well prepared for their classes. (ITB) (.59/.59) Interaction with age of faculty, sex of students, major discipline interest of students, sub-cultural membership of students and with student satisfaction - dissatisfaction with instructional climate.

2-4 Instructors are enthusiastic about their courses. (IP) (.40/.52) Interaction with students sex, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

3-5 Instructors know their field of specialization very well. (ITB) (.33/.54) Interaction with student progress in college, sex and sub-cultural membership.

4-6 Instructors are sincerely interested in students and respect them as individuals. (ISR) (.42/.61) Interaction with student sex and sub-cultural membership.

5-19 Instructor's presentations and questions are thought-provoking. (ITB) (.60/.60) Interaction with student progress in college, sex and sub-cultural membership.

6-3 Instructors are dynamic and energetic. (IP) (.33/.47) Interaction with faculty administrative responsibilities and with student sex, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

7-30 Students assume much personal responsibility for their learning. (SLB) (.35/.30) Interaction with faculty satisfaction - dissatisfaction with instructional climate.

8-2 Instructors know how to teach as well as what to teach. (ITB) (.52/.65) Interaction with faculty satisfaction - dissatisfaction with instructional climate and with student major discipline and sub-cultural membership.

9-11 Instructors explain clearly and are easy to understand and follow. (ITB) (.52/.70) Interaction with student sex, major discipline, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

10-14 Students are learning something important in the courses they take. (SO) (.36/.35) Interaction with student sex and sub-cultural membership.

11-10 Instructors realize when students are bored or confused. (ISR) (.38/.53) Interaction with student sex, sub-cultural membership and estimated grade point average.

12-24 Instructors are conscientious in keeping appointments with students and in meeting their classes. (ISP) (.22/.39) Interaction with faculty teaching experience and with student progress, age and sex.

13-16 Library and other materials are provided in sufficient quantities and are readily available to students. (CAP) (.33/.49) Interaction with student sex, major discipline and sub-cultural membership.

14-9 Instructors speak clearly and can easily be heard. (ITB) (.49/.55) Interaction with student progress, sex, major discipline, sub-cultural membership, estimated grade point average and satisfaction - dissatisfaction with the instructional climate.

15-12 Courses utilize well written, appropr[illegible]nd interesting books and related reference materials. (ITB) (.59/.65) Interaction with faculty teaching experience and with student sex, sub-cultural membership and estimated grade point average.

16-22 Classrooms and laboratories are adequate for instruction, well equipped and free of outside distractions. (CAP) (.41/.49) Interaction with student progress, major discipline and sub-cultural membership.

17-25 Instructors are careful and precise in answering questions. (ITB) (.33/.60) Interaction with student sex, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

18-37 Courses are well organized with clearly specified objectives, assignments, requirements and related learning aids. (ITB) (.57/.47) Interaction with student sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

19-13 Instructors present other points of view as well as their own. (ITB) (.57/.60) Interaction with student sex and sub-cultural membership.

20-53 Examinations and other course requirements are worthwhile and reasonable in their expectations. (ITB) (.46/.36) Interaction with faculty teaching experience and with student sex, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

21-43 Students are actively involved in the instructional process; they are not merely listeners. (ITB) (.46/.33) Interaction with faculty major discipline and with student progress and sub-cultural membership.

22-17 Lectures, laboratory experiences, recitations, readings and related teaching-learning endeavor are well coordinated. (ITB) (.63/.65) Interaction with faculty age and with student sex, major discipline, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

23-34 Instructors discuss recent developments in their field of specialization. (ITB) (.42/.48) Interaction with student progress, sex, major discipline, sub-cultural membership and satisfaction - dissatisfaction with the instructional climate.

24-42 Marking and grading are clearly explained and accomplished fairly and impartially. (ITB) (.45/.51) Interaction with student sex, sub-cultural membership and estimated grade point average.

25-31 Lectures add to and complement textbooks and references. (ITB) (.37/.46) Interaction with faculty major discipline and with student sex, sub-cultural membership, estimated grade point average and satisfaction - dissatisfaction with instructional climate.

26-51 Students are encouraged to work independently. (SLB) (.34/.38) Interaction with faculty satisfaction - dissatisfaction with instructional climate and with student sub-cultural membership.

27-7 Students are attaining some of the personal objectives which they had in mind in selecting the courses they take. (SO) (.36/.35) Interaction with student sex and sub-cultural membership.

28-8 Courses are credible, meaningful, relevant and useful. (CAP) (.37/.51) Interaction with faculty rank, age and teaching experience, and with student sex and sub-cultural membership.

29-54 Instructors do original and creative work themselves. (IOB) (.37/.30) Interaction with student age, sex and sub-cultural membership.

30-39 Instructors regularly inform students of their progress and performance; they reinforce student learning. (ITB) (.39/.54) Interaction with faculty major discipline and with student progress, sex, sub-cultural membership and estimated grade point average.

31-28 Instructors compare and contrast the implications of various theories. (ITB) (.53/.58) Interaction with student age, sex and sub-cultural membership.

32-18 Examinations and other written assignments are returned promptly to students and discussed with them. (ITB) (.50/.65) Interaction with student progress, sex, major discipline, sub-cultural membership, estimated grade point average and satisfaction - dissatisfaction with instructional climate.

34-15 Instructors have an interesting style of classroom presentation. (ITB) (.42/.62) Interaction with faculty sub-cultural membership and with student sex, major discipline, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

35-21 Instructors are readily accessible to students out of class. (ISR) (.42/.55) Interaction with faculty sub-cultural membership and with student progress, sex, major discipline and sub-cultural membership.

36-26 Instructors are personable and have a sense of humor. (IP) (.49/.40) Interaction with faculty major discipline, satisfaction - dissatisfaction with instructional climate and administrative responsibility, and with student sex, sub-cultural membership and satisfaction - dissatisfaction with instructional climate.

37-27 Instructors utilize concepts and facts from related fields. (ITB) (.53/.56) Interaction with student progress, sex and sub-cultural membership.

46-23 Special academic and related counseling are available to students who need it. (CAP) (.40/.50) Interaction with student sex and sub-cultural membership.

47-29 A well balanced variety of instructional techniques is used by instructors, including such things as audio-visual aids, case studies, field trips and resource personnel as appropriate to the given course. (ITB) (.48/.59) Interaction with faculty age, major discipline and sub-cultural membership, and with student progress, sex, major discipline and sub-cultural membership.

50-20 Many elective courses are available to students. (CAP) (.41/.39) Interaction with student sex, major discipline and sub-cultural membership.

Clusters and Interacting Variables

Other data concerning clusters and attributes as provided in Chapter III may be helpful in considering attributes for the assessment and/or improvement of instructional climate. These clusters provide a framework within which to consider a related pattern of attributes that is congruent with the purposes for which they are to be used and which is sufficiently broad in scope. The interaction indicated in the list does not invalidate the use of the attributes involved, but it does point to variables which deserve attention in applying the attributes and interpreting the results obtained. Chapters IV and V provide details and leads to further consideration.

Faculty-Student Agreement and Disagreement

Faculty rank order suggests the importance accorded to each attribute by those who do the teaching. Such knowledge may be useful in choosing attributes of recognized significance that may motivate faculty to act on them. Similarly, student rank order identifies those attributes which, if characteristic of an instructional climate, may yield high levels of student satisfaction. Those attributes which have both high faculty and high student favor deserve much attention.

It may be useful also to give special attention, perhaps through student-faculty discussions, to attributes considered quite significant by either group but not necessarily by both. These attributes may be identified in Figure 1 or in Table I, the latter providing more detail of differences in perception. Indeed, faculty-student conferences on instructional climate and what each of the principal parties may do to make it increasingly effective should be a regular institutional practice. Differences in expectations and values probably influence the activities of both faculty and students.

For example, the attribute "Students assume much personal responsibility for their learning," is ranked as Number 7 by the faculty, but is Number 30 according to the students. Such disparity is not accidental, and the conditions contributing to it probably bear directly on the instructional process. Another attribute, "High Standards of performance are required of students," was not ranked high by faculty and was almost at the bottom of the students' list,which condition amplifies the need for student-faculty discussion.

A Teaching-Learning Contract

The discussions recommended may lead to what may be called a "psychological contract," in terms of which goals may be agreed upon and roles and responsibilities for faculty and students cooperatively defined. Earlier movement toward an outcome-oriented assessment and improvement program also may emerge from such cooperative planning.

Further Observations and Implications

There obviously are many attributes of instructional climate perceived as significant by faculty and students. These may be utilized in various patterns and in various ways to assess and/or improve such climate. It also is obvious that no one set of attributes will gain the unqualified strong support of all faculty or all students, nor will it be equally appropriate to all purposes or for all situations. Administrators, teachers, students and others should recognize the complexity of the teaching-learning process without using this condition as an excuse for not tackling the problems associated with its improvement.

The ability and willingness to meet the conditions of various attributes varies from one instructor to another. There seems to be no one style of teaching appropriate for all. Similarly, the responsiveness of students as individuals and in groups tends to vary more or less. Just how well correlated this responsiveness is to the level of significance attached to a given attribute is not definitely known. But the study has revealed that some students are more conservative than others in their perceptions of the significance of attributes. It may be that such "conservative" students would not be as responsive to an instructional situation characterized by these attributes as would other students who attached higher values to the attributes. And many contending forces beyond the instructor's control influence the learning of students and their reaction to a given instructional situation.

It is important that an instructor be able to diagnose instructional situations periodically. Equally important, the instructor should possess sufficient "instructional flex" so that he may adjust his teaching style appropriately to foster optimal student learning. Such responsiveness may be necessary among the several classes he teaches at a given time and among the individuals in a class. None of these measures is of much value unless the instructor implements it in a sincere and systematic effort to improve what he and his learners are doing.

The personal integrity of the instructor is crucial in these matters. Personality traits, behavior dispositions and value systems of the individual are involved. Instructional climate is probably not changed very significantly unless the instructor changes. This process necessarily involves the maintenance of personal security and a move toward more mature behavior consonant with factors mentioned above and in the previous paragraph.

Instructors may find it helpful to develop and use one appraisal instrument for self-evaluation and for student evaluation. A comparison of the ratings should help to identify attributes on which there is agreement and those on which there is disagreement. Student feedback can have much value if used wisely, and it may well provide both direction and stimulus for instructional improvement.[5]

What pleases one student and is valued at a certain level by him may affect another student somewhat differently, which variation is apparent in the distribution of responses in this study, even within the framework of overall Mean Scores and rank orders. Thus instructors should be prepared to live with some student criticism whatever they decide to do and however they attempt to do it. Again, this and other complications do not dismiss the importance of efforts to assess and improve instruction. But they do call for care and courage in facing

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5. For related research, see: John A. Centra, Two Studies on the Utility of Student Ratings for Improving Teaching, Princeton, N.J.; Educational Testing Service, 1972, 76 pp.

the issues and in interpreting and acting upon the results. The general futility of attempting to "play to the audience" in an insincere and calculative manner also is apparent.

In Conclusion

This study has explored the perceptions of faculty and students relative to what makes an effective instructional climate. The responses answer some questions, at least in part, and they also raise additional questions for further study. The attributes as presented constitute a pool of ideas which may be utilized in both the assessment and the improvement of the instructional climate. They do not provide a panacea for problems, but, employed wisely as suggested, they offer a point of departure from which to move toward teaching whose effectiveness is apparent in the learning outcomes achieved by students.